



U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON

2011

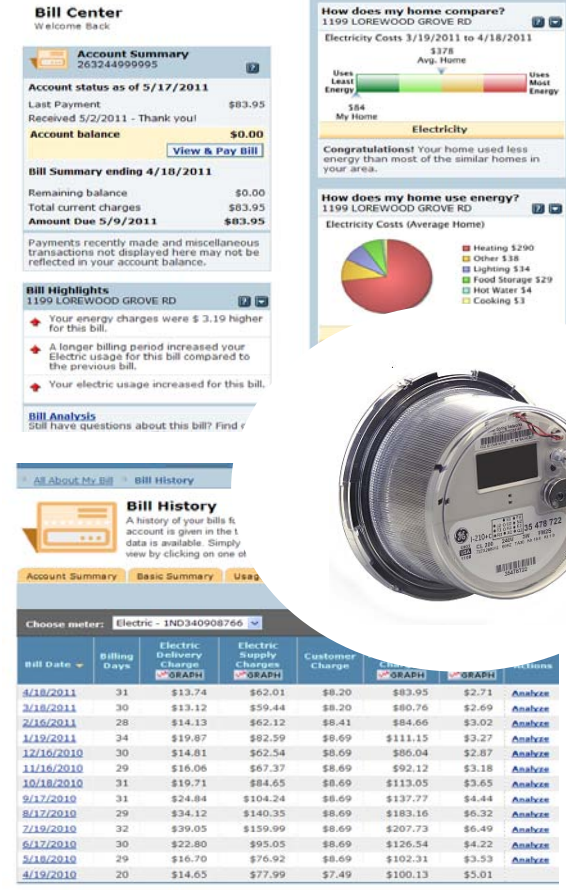
Customer Focus- Take Control of Your Energy Use

Pepco Holdings, Inc.
James J Demarest

Team members: Brandon Bowles, Avolon Joseph, Gillian Scott

Tools to Take Control

- Smart meters
- Customer Web portal: “My Account”
 - Energy usage reports
 - Historical and prospective comparisons
 - Comparative data
 - Graphs
 - Bill to date analysis
 - Review and pay bill



Smart Meters



Smart Meter Installation Plan

Delaware

- Program Q4 2009 – Q4 2011
- 300,000 meters
- Installations near complete

District of Columbia

- Program Q4 2010 – Q4 2011
- 280,000 meters
- 40% complete as of August 3, 2011

Maryland

- Program Q2 2011 – Q2 2012
- 548,000 meters
- 2% complete as of August 3, 2011



Overall one-third complete

Future Smart Meter Benefits

Reduce Energy Use

Reliable Service

**Environmental
Protection**

- Provide customers with enhanced energy information through My Account, enabling them to better manage their energy use costs
- Significantly reduce the number of estimated bills through wireless communications
- Provide more energy use information to our Customer Care employees, so they can better help customers manage their energy use
- Help improve outage management
- Enable pricing options for customers to save even more energy and money
- Make it easier to integrate renewable energy and plug-in vehicles





Website

The screenshot shows the Delmarva Power smart meter website. At the top left is the Delmarva Power logo. To its right, a text box states: "Delmarva Power's smart meter website is your informational resource to learn everything you need to know about your new smart meter." Below this are three navigation tabs: "What is a Smart Meter?", "Understanding Your Smart Meter Data", and "Save Energy". The main banner features a woman on the left and the text: "Welcome! Here you'll find all the information you need to TAKE CONTROL OF YOUR ENERGY." To the right of the woman is a smart meter image with a yellow banner that says "GET STARTED!". Below the banner are three action buttons: "LEARN HOW TO VIEW YOUR NEW DATA" (with a "LEARN HOW" sub-button), "TAKE CONTROL OF YOUR ENERGY. SIGN UP FOR MY ACCOUNT TODAY." (with a "SIGN UP" sub-button and a link "Already have an account? Login"), and "CLICK HERE TO LEARN ABOUT YOUR NEW SMART METER" (with a "GET STARTED" sub-button and a smart meter image).

delmarva power

Delmarva Power's smart meter website is your informational resource to learn everything you need to know about your new smart meter.

What is a Smart Meter? Understanding Your Smart Meter Data Save Energy

"Welcome! Here you'll find all the information you need to

TAKE CONTROL OF YOUR ENERGY.

GET STARTED!

LEARN HOW TO VIEW YOUR NEW DATA **LEARN HOW**

TAKE CONTROL OF YOUR ENERGY. SIGN UP FOR MY ACCOUNT TODAY. **SIGN UP**
Already have an account? [Login](#)

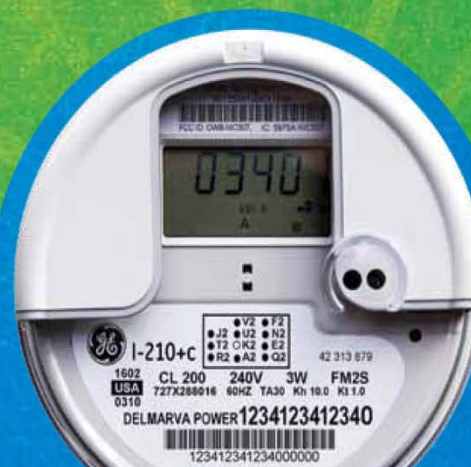
CLICK HERE TO LEARN ABOUT YOUR NEW SMART METER **GET STARTED**

Billboard

TakeControlDelaware.com

SMART METERS ARE HERE.

1-855-NEW-METER



 **delmarva
power**

Your life. Plugged in.™



My Account

Positioning PHI as a Trusted Partner

- Responsive to customers, offering more than safe and reliable power.
- Supplementing traditional electricity service with information and assistance; working with our customers to identify solutions.
- Providing customers with easy access to useful energy information that will save them money.

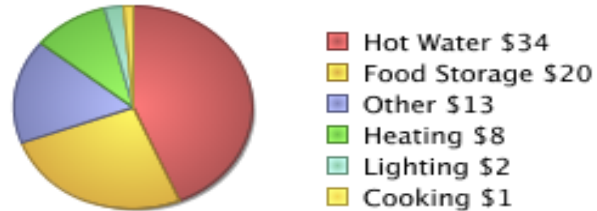


We are continuing a two-way conversation with our customers and focusing on communications

Helping Customers Manage Their Energy Bills:

*My Account – an
online interactive
tool that provides
information and
advice*

Electricity Costs 3/11/2009 to 4/9/2009



Electricity

Control my costs!

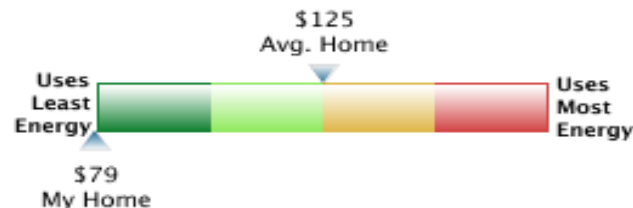
Hot Water is your highest energy expense. Click **Find ways to save** to get specific recommendations for reducing your energy costs.

How does my home compare?

7311 17TH AV



Electricity Costs 3/11/2009 to 4/9/2009



Electricity

Congratulations! Your home used less energy than most of the similar homes in your area.

How does my home use energy?

How can I control my costs?

How does my home compare?

Why is my bill different than before?

Previous Balance and Total Current Charges.

Bill Highlights

7311 17TH AV



- ⬇ Your energy charges were \$ 50.57 lower for this bill.
- ⬇ Your electric usage decreased for this bill.
- ▣ A previous balance of \$ 26.73 is included in this bill.
- ⬇ The weather decreased your bill by \$5 - \$8.
- ⬇ A shorter billing period decreased your Electric usage for this bill compared to the previous bill.
- ⬇ Your electric rate decreased your bill \$ 0.87 this month.

Bill Analysis

Still have questions about this bill?
Find out more about why your bill has changed.

How does my bill compare to last year?

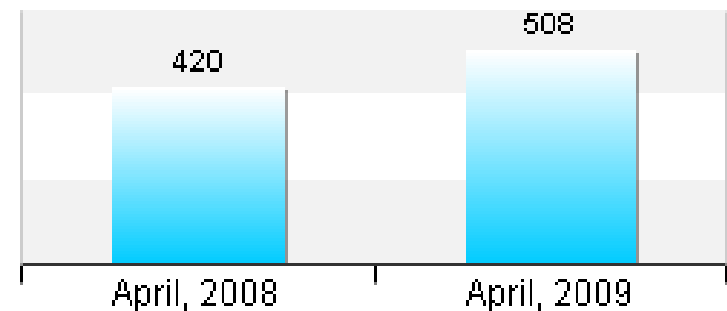
How does my usage compare?

7311 17TH AV



Usage Comparison

■ Electric Use (kWh)



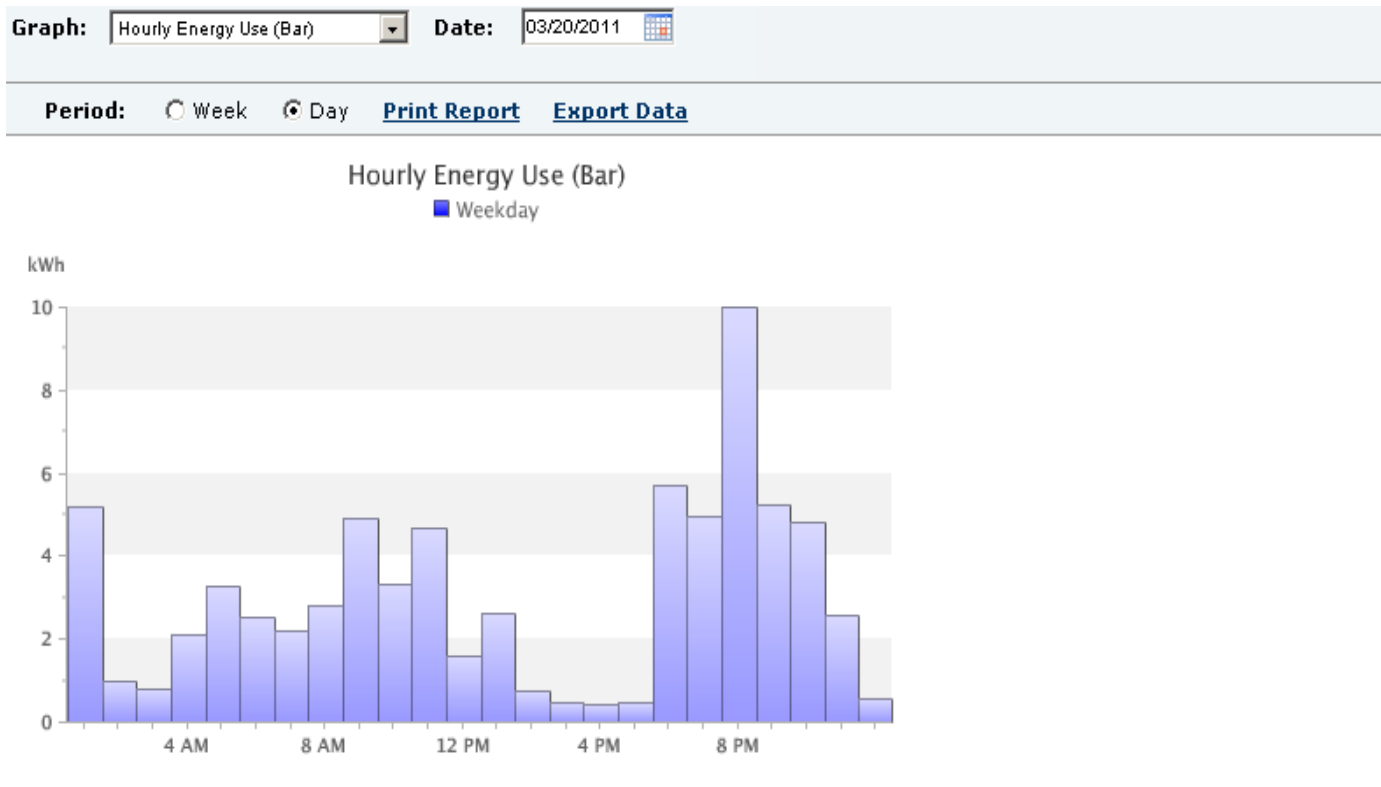
Energy Usage Information

- Daily Energy Use & Weather Graph



Energy Usage Information

- Hourly Energy Graph



Examples of Customized Energy Usage Reports



BOB SMITH
1515 N COURTHOUSE RD
ARLINGTON, VA 22201

Home Energy Report

Account number: 1234567890
Report period: 07/30/10 – 08/27/10

We are pleased to provide this personalized report to help you save energy.

The purpose of the report is to:

- **Provide information**
- **Help you track your progress**
- **Share energy efficiency tips**



This information and more is available at
UtilityCo.com/energyreport

Last Month Neighbor Comparison | You used **70% MORE** electricity than your efficient neighbors.



* kWh: A 100-Watt bulb burning for 10 hours uses 1 kilowatt-hour.

How you're doing:

Great 😊😊

▶ **GOOD** 😊

More than average

Who are your Neighbors?

■ All Neighbors

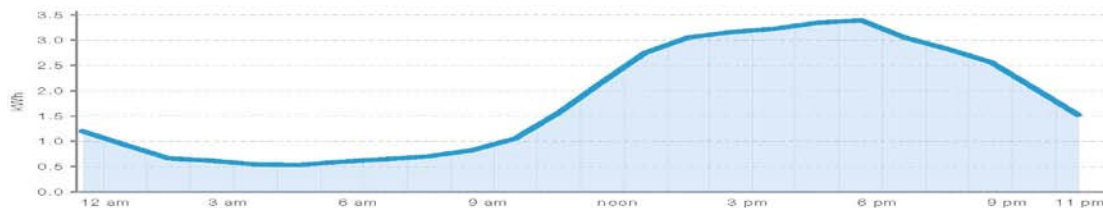
Approximately 100 occupied, nearby homes that are similar in size to yours (avg 1,716 sq ft)

■ Efficient Neighbors

The most efficient 20 percent from the "All Neighbors" group

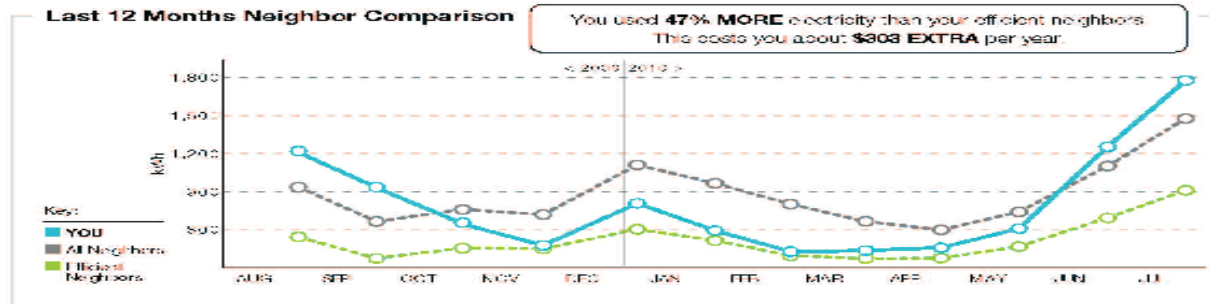
An Average Day Last Month

On average, you used the most from 4 – 7 pm.
Think about what uses electricity during this time.



Do you use more on weekdays or weekends? Visit UtilityCo.com/energyreport to find out.

Turn over for savings →



Your Personalized Plan

Customized based on your profile: Homeowner, High Cooling Use, 1716 Sq Ft, Home all day.
Update your profile online.



Adjust your thermostat

To 72 degrees when you're at home
To 76 degrees when you're away

Save up to
\$165/year



Fix gaps around windows and doors

Next steps:
Buy sealant at your local hardware store

Save up to
\$310/year



Maintain your air conditioner yearly

Next steps:
Change your AC filter
Clean the coils and nearby areas
Comb the coil fins

Save up to
\$20/year



Update your plan at
UtilityCo.com/energyreport

**How many can you
check off?**

runs on OP@WER

Call us at 1-800-UtilityCo or email us at SmartMeter@UtilityCo.com
UtilityCo.com/energyreport

© SmartMeter 2019. All rights reserved. No part of this publication may be reproduced without permission.

Dynamic Pricing

Dynamic Pricing

- **Dynamic pricing rate options to reduce energy use during hours of peak pricing**
- **Allows customers to save money and manage energy use**
 - **Critical Peak Rebate**
 - Path to incentivize customers
 - Respond to system wide request to reduce load
 - Lower bills compared to standard offer service
- **Could help to achieve by enrolling in direct load control program**
- **Limited rollout summer 2012 to 17,000 customers**
- **Full rollout 2013 – 2014**

Key activities involved in the Dynamic Pricing process include:

1

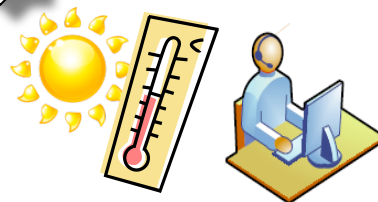
Dynamic Pricing Enrollment



- PHI defaults a customer to CPR
- Customer uses Rate Comparison Calculator (RCC) to compare rate options
- Customer sets notification preferences or opts-out of the Dynamic Pricing rate (through My Account or a CSR)

2

PHI Initiates a Critical Peak Event and Notifies Customers



- PHI Power Procurement initiates a Critical Peak Event for the next business day
- Customer receives notifications based on his preferences

Active Notifications

Text
E-mail
Voice

Passive Notifications

Customers may view Dynamic Pricing Alerts on Corporate Website (Delmarva.com, Pepco.com) and My Account

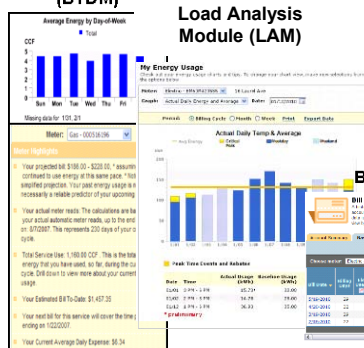
Message Sample:
A Critical Peak Event has been called for Delaware customers in Delaware for Tuesday, June 7th from 2PM to 8PM. Save money by using less electric during this time

3

Customer Views Event Results



Bill to Date Module (BTDM)



4

Customer Receives Dynamic Pricing Bill

Details of your electricity charges

Electricity you used this period

Meter #	End Date	Start Date	# of Days	Total Usage
123456789	8/7/2010	8/7/2010	30	600 kWh
123456789	8/7/2010	8/7/2010	30	171 kWh
Total				671 kWh

A portion of your usage data has been calculated based on your normal usage pattern. Your next bill is scheduled to be calculated on October 15, 2010.

Critical Peak Rebate - summary of usage and rebate eligibility during designated event periods. Please visit delmarva.com for more detailed information.

Event Type	Event Day	Baseline Usage kWh	Event Usage kWh	Change kWh	Rebate
Peak Day	18-Aug	60	48	-12	yes
Emergence	21-Aug	60	60	-0	yes
Peak Day	28-Aug	62	65	3	no

kWh saved and eligible for critical peak rebate: 7kWh

Customer Charge	Fixed charge	Fixed kWh	Fixed \$
Customer Charge	Fixed charge	Fixed kWh	Fixed \$
Distribution Charge	Fixed charge	Fixed kWh	Fixed \$
Total Delivery Charges			\$27.50

Supply Charges - These charges reflect the cost of producing electricity for your home. You can compare this part of your bill to offers from competitive suppliers. The average price to compare for your rate class is \$0.05 cents per kWh.

Transmission Generation	Fixed charge	Fixed kWh	Fixed \$
Transmission Generation	Fixed charge	Fixed kWh	Fixed \$
You Saved:			\$10.00
Critical Peak Rebate			\$89.70
Total Electric Charges			\$197.34

- A Dynamic Pricing customer will see interval information in the meter section, a Critical Peak Rebate table with event information and Critical Peak Rebate savings information



Direct Load Control Program

Direct Load Control - Energy Wise Rewards

Pepco and Delmarva Power/MD EmPower Maryland

- a. Energy Efficiency Act of 2008
- b. Establishing the State goal of achieving a 15% reduction per capita of electricity consumption and peak demand by the end of 2015;
- c. Order approved April 2008 by Maryland Public Service Commission
- d. Program launched June 2009 – March 2013
- e. 222,000 customers to participate by end of program
- f. 98 MW load reduction

Atlantic City Electric/ NJ

- a. July 29, 2009 order approved by Board of Public Utilities
- b. Phased approach by county
- c. Launched April 25, 2010 – March 2014
- d. 42,200 customers to participate by end of program
- e. 16 MW load reduction

Direct Load Control

- **Energy Wise Rewards Program**
 - **Smart thermostats**
 - Program home temperature online based on lifestyle
 - **Direct control unit switches**
 - Installed outside near AC compressor
- **Enables the utility to reduce customer's air conditioning use during peak electrical usage**
- **June – October**



Participation Level	Initial bill credit when installed	Monthly bill credit - June, July, August, September, October
50% - MD 50% - NJ	\$40 \$50	\$8/month \$0
75% - MD	\$60	\$12/month
100% - MD	\$80	\$16/month

Energy Wise Rewards - Customer Inquiry Process

Questions / support / emergency 24x7

- **DPL: 1-866-353-5799**
- delmarva.com/rewards
- **Pepco: 1-866-353-5798**
- pepco.com/rewards
- **Atlantic City Electric : 1-866-355-4229**
- Atlanticcityelectric.com/rewards



Residential Energy Efficiency

Energy Efficiency – Lighting and Rebates

Lighting Program (Compact Fluorescent Lights)

- Save \$1.50 on each single CFL and \$3.00 on multipacks at participating store locations.
- Program to date: 2.3M CFL's purchased

Appliance Rebate Program

- Refrigerator \$50
- Room Air Conditioner \$25
- Water Heater \$20
- HVAC up to \$300
- Program to date: 10,300 rebates paid

Energy Efficiency – HVAC Rebates

- **Two types of rebates for**
 - Tune-up of electric central air conditioning or air source heat pump systems
 - Purchase and installation of high-efficiency HVAC system replacements.
- **Eligibility Requirements**
 - The HVAC Efficiency Program is available to all Pepco customers in Maryland.
 - Rebates for the purchase and installation of high-efficiency
- **Rebate Amounts**
 - Electric Central A/C or Electric Air Source Heat Pump System Tune-Up* \$100
 - Replacing Electric Central A/C
≥ 14 SEER & ≥ 11.5 EER \$150
 - Replacing Electric Central A/C
≥ 15 SEER & ≥ 12.5 EER \$300
 - Replacing Electric Air Source Heat Pump*
≥ 14 SEER & ≥ 11.5 EER & ≥ 8.5 HSPF \$200
- **Program to date rebates: 1,757**
- **Program to date participants: 1,646**

**Geothermal heat pumps are not included in the program at this time*

Energy Efficiency – Income Eligible

Income Eligible Energy Efficiency Program

- A comprehensive Home Energy Assessment to identify what energy-saving changes will be the most effective in reducing your home's energy costs.
- Customized energy-saving products and services to eligible residential customers
- Eligibility is based on annual income and number of people living in the home
- The types of energy efficiency improvements may include:
 - Insulation
 - Air sealing (caulking, weather stripping, etc.)
 - Duct sealing and insulation
 - High-efficiency lighting
 - Electric water heater tank wraps and pipe insulation
 - Low-flow, water-saving showerheads
 - Faucet aerators
 - Repairs related to health and safety
- **301 customers helped; 811 MWH hours saved**
 - 811 MWH is the equivalent to power an average of 800-1000 residential homes for one month

Energy Efficiency - Home Energy Efficiency Audits

Pepco is committed to helping our customers save energy, money and the environment - starting right at home. Here are some simple resources you can use to start saving energy and money quickly!

- **My Account Online Energy Auditing Tool** - a do-it-yourself tool that compares monthly bills to help understand when and why energy use changes, and how those changes affect the total costs each month. With this information, customers can make smarter energy choices.
- **Quick Home Energy Check-Up** - this affordable program brings a surveyor into the home to identify quick, easy ways to improve energy efficiency, safety and comfort.
 - The Quick Home Energy Check-up normally costs \$40 and is payable at the time of inspection.
 - **However, the inspection will be conducted at no cost to you if you choose to have the surveyor install at least three recommended energy-saving products at the time of the check-up:**
 - Compact fluorescent light bulbs (CFLs); available in an assortment of styles
 - Tank wrap for your electric hot water heater
 - Pipe wrap for your electric hot water heater
 - Low-flow showerheads)
 - Kitchen faucet aerator or three energy-efficient bath aerators
- **Home Performance with Energy Star**
 - A comprehensive, whole-house approach to improving home energy efficiency, comfort and safety.



Energy Efficiency Home Performance with Energy Star



COMMON RECOMMENDATIONS*

Each home's problems are different, but there are some recommendations that Home Performance contractors frequently make:

- A. Sealing Air Leaks and Adding Insulation.** These are critical first steps to improving the energy efficiency of your home.
- B. Improving Heating and Cooling Systems.** If your furnace or air conditioner is more than 10 years old, your contractor may recommend that you replace it with a unit that has earned the ENERGY STAR label.
- C. Sealing Ductwork.** Sealing leaks, making sure ducts are straight and properly connected, and insulating where needed, will greatly improve your home's comfort and energy efficiency.

- D. Replacing Windows.** If it's time to replace your home's windows, your contractor may recommend ENERGY STAR qualified models specific to your climate.
- E. Upgrading Lighting, Appliances, and Water Heating Equipment.** Energy used in these areas can account for nearly half your utility bill, so there's a big opportunity to save by installing ENERGY STAR qualified products.
- F. Installing Renewable Energy Systems.** Once energy efficiency improvements have been made to your home, your contractor may recommend additional measures, like installing solar panels or a solar hot water system.

** Not all recommended improvements are eligible for rebates.*



Renewables

Renewables – Green Power Connection

- **Green Power Connection™.**
 - Enables customers to install renewable-powered generators and then sell unused power back to the power grid.
- **How It Works at Pepco Holdings Inc.**
 - If more electricity is produced from the renewal source than used by the customer, the meter runs in reverse; this energy is sent back to the regional power grid
 - If less energy is produced from the renewal source than is needed by the customer, the meter runs as it normally would
 - Amount produced from renewables is subtracted from actual kWh used
 - The monthly electric bill includes
 - the standard customer charges
 - charged for the “net” amount of energy used

Renewable Energy

Local, large-scale solar projects

■ Pepco

- University of Maryland, MD .632 MW June 2011
- Redskins Stadium, MD 1.700 MW Sept 2011
- Rockville Ice Arena, MD .595 MW Sept 2010
- Kohl's Silver Spring, MD .217 MW May 2009

■ Delmarva Power

- Dover SUN Park, DE 10.0 MW Summer 2011
- Astra-Zeneca, DE 1.7 MW June 2011

■ Atlantic City Electric

- Pleasantville Board of Education (H.S.) 1.7 MW Sept 2011
- Pleasantville Board of Education (M.S.) 1.3 MW June 2011
- Ag- Mart, NJ 2.0 MW Sept 2010
- Santa Sweets, NJ 2.0 MW Oct 2010
- Atlantic City Convention Center, NJ 2.4 MW Dec 2008

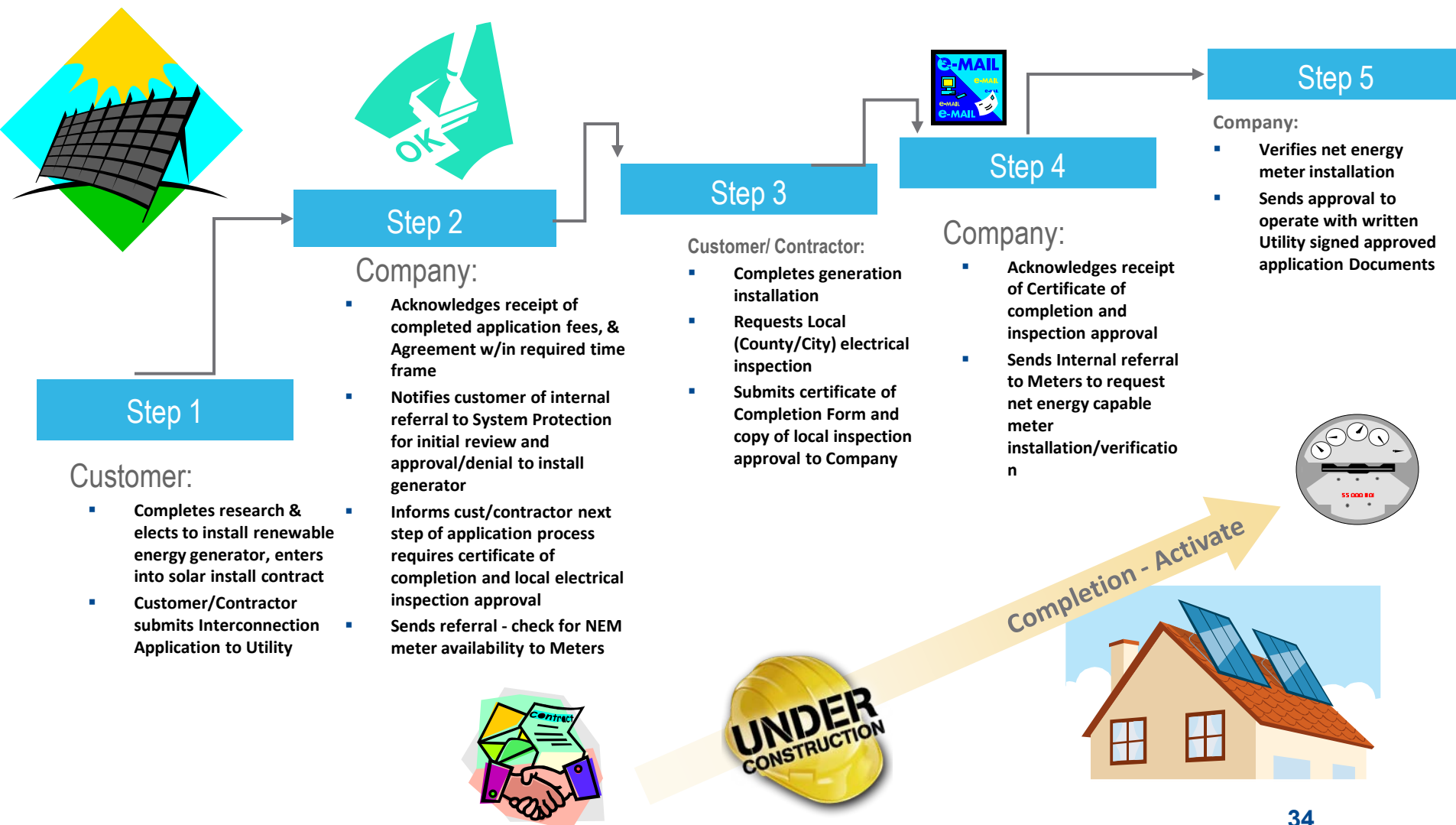
Federal and local Incentives for Renewables

- Corporate Tax Credit
- Renewable Electricity Production Tax Credit (PTC)
- Federal Grant Program
- U.S. Department of Treasury – Renewable Energy
- Federal Loan Program
- Clean Renewable Energy Bonds (CREBs)
- Performance-Based Incentive
- Renewable Energy Production Incentive (REPI)
- Personal Tax Credit
- Residential Renewable Energy Tax Credit
- Montgomerycountymd.gov
 - (type energy tax credit in search)
- <http://www.energysavvy.com/rebates/MD/county/prince-georges-county/>
- <http://www.energysavvy.com/rebates/DC/>

For more information:

<http://www.dsireusa.org/incentives>

Interconnection Application Processing Steps



Friendly Reminders- Application Process

- Customer must submit application and obtain approval from Utility prior to beginning (solar) generator installation
- Include all pertinent Customer & Contractor contact information on application form
- Ensure customer signature is included on application and standard interconnection agreement/contract
- Include application & KW fee upon submission of application
- Customer/Contractor is responsible for requesting local electrical inspection and obtaining solar inspection approval
- Customer/contractor is responsible to submit certificate of completion and copy of solar inspection approval to alert Utility of solar installation completion
- Customer must receive written Utility approval to operate from Utility prior to operating installed (solar) generator
- Interconnection rules are established and approved by the appropriate municipal legislatures & PSC/BPU Regulators

Green Power Connection TM Contacts

Green Power Connection TM is the Company trademark name for what is known in the industry as “Net Metering” or “Net Energy Metering.” Our Green Power Connection Team handles the processing of Small Generator Interconnection applications per the appropriate jurisdictional regulator’s approved rules.

Pepco

(202)872-3419 - Phone

(202) 872-3228 – Fax

Email: gpc-south@pepco.com

Atlantic City Electric & Delmarva Power

(866) 634-5571 - Phone

(856) 351-7523 – Fax

Email: gpc-north@pepcoholdings.com



Electrical Vehicles

PHI has a rich history in Electric Vehicles

- Member of DOE Site Operator Program
 - Maintained a fleet of 6 all-electric conversion vehicles
- Founding Member of EV America
 - Developed first utility standards for electric vehicles
 - Later turned over to DOE
- GM PrEView Drive Program
 - 60 customer drivers for two weeks at a time
 - Installed over 75 Level 2 chargers
- Toyota RAV4 EV Program
- Ford Ranger EV Program



Outreach Activities

- **Institutions:**
 - EPRI, EEI, PJM, University of Delaware, BEVI
- **OEM's: Ford, General Motors**
- **Agencies:**
 - COG
 - Maryland Energy Administration
 - NJ Economic Development Authority
 - Architect of the Capitol
 - GSA, NIH, DOT, DOE
 - DC DOT
 - Delaware Transportation Council
 - **Metro (WMATA)**
- **Other Utilities**
 - Dominion, BGE, Progress Energy, SCE, DTE, etc

PHI Fleet Deployment (August 8, 2011)

Vehicle Type	ACE	DPL	Pepco	Total
Hybrid Cars	9	30	33	72
Hybrid Plug-in Car			1	1
Hybrid SUV's	20	48	40	108
Hybrid SUV Plug-in			1	1
Hybrid Buckets	5	10	10	25
Total	34	88	85	207